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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/628,310	07/28/2000	KENJI NISHI	106827	3797

25944 7590 03/03/2003

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EXAMINER

ESPLIN, DAVID B

ART UNIT PAPER NUMBER

2851

DATE MAILED: 03/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/628,310

Applicant(s)

NISHI, KENJI

Examiner

D. Ben Esplin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9-12, 15-20, 22-29, 32-43 and 45-56 is/are rejected.
- 7) ☒ Claim(s) 6-8, 13, 14, 21, 30, 31 and 44 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3, 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 9/18/00 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

The information disclosure statement filed 10/20/00 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because there is no PTOL-1449 form included with the material. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, any exposure method must be shown in the form of a flowchart, or the method(s) canceled from the claim(s). No new matter should be entered.

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A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

Claims 6-8 are objected to because of the following informalities: Claim 1, from which these claims depend includes the method step of “measuring a height of the surface of the substrate at a measuring point”. But claim 6 discloses that the height of a fiducial member, not the substrate, is measured. These conflicting limitations create an unclear scope of claimed subject matter. Should this objection be overcome, by amendment or argument, the subject matter of measuring the height of a fiducial member at a plurality of positions and storing a result of the measurement for determining inclination of the substrate stage, along with the rest of the structure and function of these claims, is not found in the prior art. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 9-12, 15-20, 22-29, 32-35, 36-43, and 45-56 are rejected under 35

U.S.C. 102(b) as being anticipated by Japanese Patent Application Laid-Open 6-283403.

FIG. 20 of Japanese application 6-283403 shows an exposure apparatus including a focus position-measuring unit (focal position detection unit including elements 60-71), and a focusing stage (Z leveling stage 54). Japanese application 6-283403 further shows an inclination angle-measuring unit (focal position detection unit as shown in FIG. 21). FIG. 21 represents the location of a plurality of measuring points at which the height of the surface of the substrate are measured, including a series of points perpendicular to the scan direction, and a series of points parallel to the scan direction. The apparatus of FIG. 20 still further includes a measuring unit (interferometer 57) with a fiducial member (mirror 56) for measuring the X and Y coordinates (or rolling amount) of the stage at all times. FIG. 1 of Japanese application 6-283403 shows an alternative fiducial member (reference mark board 6) for measuring the straightness of the substrate stage.

According to Applicant, Japanese application 6-283403 discloses an exposure method including the steps of measuring a height of the surface of a substrate in front of an exposure area in a relative movement direction (page 3 lines 5-9 of subject application), and setting the positional relationship based on this measurement (page 3 lines 9-13). Since the height and inclination are measured prior to exposure the measuring point would inherently be in front of the exposure area, and would mean that the measurement takes place during scanning of the substrate. Further, since in the method of Japanese application 6-283403 the height and

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inclination (or pitch) of the substrate is continuously being monitored, a plurality of points are created where the height and inclination are measured.

Referring specifically to claims 54-56, these claims are product-by-process claims, meaning that the devices claimed must be materially distinguishable of a device produced by the prior art, and not the processes of their production. Since a device formed using the methods claimed would be indistinguishable from a device formed by Japanese application 6-283403, these claims are also anticipated by Japanese application 6-283403.

Allowable Subject Matter

Claims 13, 14, 21, 30, 31, and 44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

Referring to claims 13 and 14, an exposure method including the use of a fiducial member that is detachable for use by a plurality of exposure apparatuses, along with the rest of the structure and function of these claims, is not found in the prior art.

In reference to claims 21 and 44, an exposure apparatus including including a detection range of a second focus position-measuring unit that is wider than the detection range of a first focus position-measuring unit, with the rest of the limitations recited in these claims, is not shown in the prior art.

Regarding claims 30 and 31, an exposure apparatus including an inclination angle-measuring unit that measures a height of a surface of a fiducial member at a plurality of positions

within a movement stroke of the substrate stage, in conjunction with the rest of the elements of these claims, is not taught in the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,122,036 to Yamasaki et al. discloses a projection exposure apparatus including a fiducial member, an inclination and height detector, and a roll detector.

U.S. Patent No. 5,510,892 to Mizutani et al. discloses an inclination detecting exposure apparatus with a separate height detector.

U.S. Patent No. 5,602,400 to Kawashima discloses an exposure apparatus with a substrate surface detector for detecting the surface of a substrate at a plurality of different locations.

U.S. Patent No. 5,114,234 to Otsuka et al. discloses an exposure apparatus with an inclination and roll detector.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Ben Esplin whose telephone number is (703) 305-4022. The examiner can normally be reached on Mon.-Fri. (8am-4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russell E. Adams can be reached on (703) 308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



DBE

February 25, 2003



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